

WHAT IS CLAIMED IS:

1. A distortion compensating amplifier having a distortion compensator for compensating for distortion of an amplifier by updating distortion compensation coefficients so as to null a difference between a transmit signal and a feedback signal, and subjecting the transmit signal to distortion compensation processing using the distortion compensation coefficients; an amplifier for amplifying the transmit signal, which has undergone distortion compensation, in order to transmit the signal from an antenna; a feedback unit for inputting an output signal from the amplifier to a distortion compensation coefficient updater in the distortion compensator as the feedback signal; and a delay circuit for inputting the transmit signal to the distortion compensation coefficient updater upon delaying the transmit signal, said distortion compensating amplifier comprising:
 - means for monitoring whether the level of an unwanted-wave signal that penetrates the amplifier from space via the antenna is greater than a set level; and
 - update processing suspension means for suspending processing for updating the distortion compensation coefficients if the level of the unwanted-wave signal is greater than the set level.
2. The amplifier according to claim 1, further comprising:
 - means for detecting a signal component, which is outside a frequency band of the transmit signal, included in the feedback signal;
 - means for controlling delay time of said delay circuit based upon power of the signal component.
3. The amplifier according to claim 1 or 2, wherein said update processing suspension means resumes processing for updating the distortion compensation coefficients if the level of the unwanted-wave signal is less the set level.
4. A distortion compensating amplifier having a distortion compensator for compensating for distortion of an amplifier by updating distortion compensation coefficients so as to null a difference between a transmit signal and a feedback signal, and subjecting the transmit signal to distortion compensation processing using the distortion compensation

coefficients; an amplifier for amplifying the transmit signal, which has undergone distortion compensation, in order to transmit the signal from an antenna; a feedback unit for inputting an output signal from the amplifier to a distortion compensation coefficient updater in the distortion compensator as the feedback signal; and a delay circuit for inputting the transmit signal to the distortion compensation coefficient updater upon delaying the transmit signal, said distortion compensating amplifier comprising:

- means for detecting an unwanted-wave signal that penetrates the amplifier from space via the antenna;
- analog-to-digital converting means for converting detected level of the unwanted-wave signal to digital data; and
- means for suspending processing for updating the distortion compensation coefficients based upon the level of the unwanted-wave signal.

5. The amplifier according to claim 4, further comprising:

- means for detecting a signal component, which is outside a frequency band of the transmit signal, included in the feedback signal; and
- means for controlling delay time of said delay circuit based upon said level.

6. The amplifier according to claim 4 or 5, wherein when the level of the unwanted-wave signal is greater a set level, said update processing suspension means suspends processing for updating the distortion compensation coefficients and changes the set level in accordance with the level of the transmit signal.

7. The amplifier according to claim 6, wherein said update processing suspension means resumes processing for updating the distortion compensation coefficients if the level of the unwanted-wave signal is less than the set level.

8. A distortion compensating amplifier having a distortion compensator for compensating for distortion of an amplifier by updating distortion compensation coefficients so as to null a difference between a transmit signal and a feedback signal, and subjecting the transmit signal to distortion compensation processing using the distortion compensation coefficients; an amplifier for amplifying the transmit

signal, which has undergone distortion compensation, in order to transmit the signal from an antenna; a feedback unit for inputting an output signal from the amplifier to a distortion compensation coefficient
5 updater in the distortion compensator as the feedback signal; and a delay circuit for inputting the transmit signal to the distortion compensation coefficient updater upon delaying the transmit signal, said distortion compensating amplifier comprising:
10 means for detecting an unwanted-wave signal that penetrates the amplifier from space via the antenna;
update processing suspension means for suspending processing for updating the distortion compensation coefficients when detected level of the unwanted-wave
15 signal is greater than a set level; and
changeover means for selectively inputting the feedback signal and the unwanted-wave signal to said distortion compensation coefficient updater and said update processing suspension means;
20 wherein said distortion compensation coefficient updater executes processing to update the distortion compensation coefficients only when the feedback signal is being input thereto and, moreover, suspension of update processing has not been specified.
25 9. The amplifier according to claim 8, further comprising means, to which the feedback signal is selectively input, for controlling delay time of said delay circuit based upon the level of a signal component, which is outside a frequency band of the
30 transmit signal, included in the feedback signal.
10. A distortion compensating amplifier having a distortion compensator for compensating for distortion of an amplifier by updating distortion compensation coefficients so as to null a difference between a
35 transmit signal and a feedback signal, and subjecting the transmit signal to distortion compensation processing using the distortion compensation coefficients; an amplifier for amplifying the transmit signal, which has undergone distortion compensation, in
40 order to transmit the signal from an antenna; a feedback unit for inputting an output signal from the amplifier to a distortion compensation coefficient updater in the distortion compensator as the feedback signal; and a delay circuit for inputting the transmit

signal to the distortion compensation coefficient
updater upon delaying the transmit signal, said
distortion compensating amplifier comprising:

- 5 means for detecting an unwanted-wave signal that
penetrates the amplifier from space via the antenna;
- update processing suspension means for suspending
processing for updating the distortion compensation
coefficients when a signal component, which is outside
a frequency band of the transmit signal, included in
10 the unwanted-wave signal is greater than a set level;
- means for extracting a signal component, which is
outside a frequency band of the transmit signal,
included in the feedback signal; and
- means for controlling delay time of said delay
15 circuit based upon the level of the signal component.